1.0 STEP 1: CONTEXT OF THE ANALYSIS

The purpose of this step, per the *Roads Analysis: Informing Decisions About Managing the National Forest Transportation System* (USDA FS-643) document, is to identify the level of decision-making of this analysis. The analysis will inform, identify the geographic scale considered, develop a process plan, and clarify the roles of the Interdisciplinary Team.

1.1 Objective

The objective of this roads analysis is to complete a forest-wide scientific and quantitative review of the Chequamegon-Nicolet National Forest (CNNF) Maintenance Level 3, 4, and 5 road system and to integrate environmental, social, and economic concerns with transportation planning for both existing and future roads. This information is intended to support the current Land and Resource Management Plan, Chequamegon National Forest (USDA FS 1986a), Land and Resource Management Plan, Nicolet National Forest (USDA FS 1986b; *Forest Plans*), Forest Plans revisions, future *Forest Plan* amendments, transportation planning, and project level roads analyses. This information will support the decision-making process in defining optimum land stewardship needs and management objectives.

1.2 Interdisciplinary Team Members and Participants

The Interdisciplinary Team (IDT) for this project is comprised of personnel from the Chequamegon-Nicolet National Forest (CNNF) and T N & Associates, Inc. (TN&A). These personnel consist of technical experts with disciplines in the areas of ecology, engineering, fire management, fisheries biology, forestry, GIS, heritage resources, hydrology, recreation, resource planning, and wildlife biology.

1.3 Informational Needs

Informational needs for this project consist of available data, which the USDA Forest Service owns or has access to. If the information was not available in a reliable and usable format at the time this study was performed, it was not incorporated into the analysis.

Existing plans that are available and were incorporated into the findings include:

- Chequamegon National Forest Plan (1986), as amended
- Nicolet National Forest Plan (1986), as amended

Existing digital mapping data that is available in a GIS format and was incorporated into the findings include:

- Forest Service Road System
- Streams
- Lakes
- Ownership

- Forest Service Management Areas
- Threatened, Endangered and Sensitive (TES) Species Locations
- Watersheds
- Wetlands
- Riparian Zones
- Slope Classes

Existing data that was available in a tabular format and was transferred to a GIS format and incorporated into the findings includes:

- Non-Native Invasive Species Locations
- Gravel Pit Locations
- Recreational Sites
- Communication Tower Locations

Additional existing tabular data that was incorporated into the findings includes:

- USDA Forest Service Infrastructure (INFRA) Data Set

1.4 Analysis Plan

The USDA Forest Service determined that "the minimum road system needed for safe and efficient travel and for administration, utilization, and protection of National Forest Lands" (FSM 7712.01) includes Maintenance Level 3, 4, and 5 roads. A scientific and quantitative review related to the environmental, social, and economic impacts of these roads has been completed.

To begin the analysis, a coordinated effort by the USDA Forest Service and TN&A was needed to conduct an effective review of the existing road system and its related impacts. Public input was sought from governmental agencies, tribal groups, and the general public. The roles of the USDA Forest Service, TN&A and the public are described below:

USDA Forest Service Role
The USDA Forest Service identified and coordinated the IDT. The IDT members identified road related issues; provided scoring criteria for the issues; performed a qualitative review of the Roads Analysis Matrix; provided written responses to the seventy-two questions outlined in Step 4, Assessing Benefits, Problems, and Risks; described opportunities; and set priorities.

TN&A Role
TN&A supported the USDA Forest Service by performing a GIS based analysis, utilizing existing digital resources and infrastructure data, to 'score' the road system based on criteria supplied by the USDA Forest Service. The results of the analyses provide an evaluation of the relative resource impacts and usage of the road system and are summarized in the Roads Analysis Matrix (Appendix B). The results of the Roads Analysis Matrix were used to identify opportunities and set priorities that address those opportunities.

Public Role

The USDA Forest Service hosted governmental meetings and tribal meetings in the spring of 2002 to request comments and opportunities on the existing road system. Two public information meetings were also held in the spring of 2002 to request input on the existing road system.

In the fall of 2002, the USDA Forest Service hosted governmental and tribal meetings to present the findings of the analysis and request final comments. Two additional public information meetings were held to present the findings and request final comments on the Roads Analysis.

Road related comments and opportunities from the public were incorporated into this Roads Analysis document.

1.5 Analysis Area

The analysis area is comprised of the entire CNNF. A brief history and background outlining the establishment of the CNNF is discussed in the following sections, as well as the history of CNNF roads.

1.5.1 History of the Chequamegon-Nicolet National Forest

The Chequamegon and Nicolet National Forests were established by presidential proclamation in 1933, created from tax-forfeited land either purchased from State and local governments or from private individuals and timber companies (USDA FS 2001c; Haugen et al. 1998). Social practices and cultural traditions of past inhabitants have greatly shaped the lands that make up the CNNF today. Forest archeologists have traced the cultural history of the CNNF to forest occupancy by Paleo-Indian people over 10,000 years ago (USDA FS 2001c; USDA FS 1998d). Paleo-Indian people were followed by Archaic Indian people, Woodland Tradition Indians, unknown prehistoric people, and American Indians. In more recent history, the forest was occupied by people involved in the fur trade, logging industry, forest management era, and settlement/recreation era (USDA FS 2001c; USDA FS 1998d).

In the 1600s, European missionaries and fur traders, as well as Native Americans, made their home in northern Wisconsin (USDA FS 2001c). The significance of the name of the Chequamegon-Nicolet National Forest can be traced back to this period. The name Chequamegon was derived from a Native American-Ojibway word meaning "place of shallow water," which referred to Lake Superior's Chequamegon Bay (USDA FS 2001c). The Nicolet National Forest was named after the French explorer, Jean Nicolet, who came to the Great Lakes Region in the 1600s to promote fur trading with the Native American Indians. During this time, an extensive portage trail system existed throughout northern Wisconsin, which connected river systems and lake chains from the Great Lakes and Canada to the Mississippi River, and ultimately, the Gulf of Mexico (USDA FS 1998d). Although traders and explorers were the first to describe this primitive trail/road system, many of these trails and roads were

probably established by primitive peoples and Native Americans (USDA FS 1998d).

Lumbermen arrived shortly after the European fur traders and established a thriving timber industry in northern Wisconsin. The region was ideal for timber extraction due to an abundance of old-growth pine forests and rivers that were used to move pine logs to area sawmills (USDA FS 2001c). Besides the obvious effects of timber removal on forest communities, logging also greatly affected the aquatic environment of the CNNF. Many lakes and rivers were dammed or cleared of debris and rechanneled to accommodate logs. When the old growth pine forests dwindled, lumbermen started harvesting heavier hardwoods and used railroads built in the 1890s to transport the heavier hardwood logs to mills (USDA FS 1998d). During this time, many spur logging roads were created in order to access the timber base of the area. Many of these roads and railroad grades eventually were used to create the forest roads of today.

Although timber removal occurred before 1856 and continues today, peak wood production occurred from 1856 through 1945. Westward expansion of settlers into the Great Plains and both domestic and world wars created a great need for wood products during that time. When the available timber was depleted in many areas, much of the harvested land was sold to new immigrants for farms; however, the soils of northern Wisconsin proved poor for agriculture and many farms were quickly abandoned. Much of the land now comprising the CNNF was often referred to at this time as “stump land” due to its degraded condition from extensive logging and ensuing brush fires (Haugen et al. 1998). The timber industry left towns, camps, farms, mills, dams, and other structures, many of which remain in the forest and are now considered archeological sites (USDA FS 1998d).

In 1928, the Federal Government, under the authority of the Weeks Law of 1911, began buying this “stump land” and other tax delinquent lands in the northern forest region with the idea of establishing a National Forest. In March 1933, President Herbert Hoover issued a proclamation establishing the Nicolet National Forest. In 1933, President Franklin Roosevelt established the Chequamegon National Forest as a separate National Forest, comprised of the westernmost lands of the Nicolet National Forest. At that time, Park Falls became the official headquarters for the Chequamegon National Forest, and Rhinelander became the headquarters for the Nicolet National Forest (USDA FS 2001c).

Once the National Forest System was established, the government defined initial goals for the lands within the system. These goals were centered on rehabilitation of the land and were accomplished through replanting the forests and controlling the natural fires that were burning through the remaining slash. National Forests of today were greatly influenced by the work of thousands of young, unemployed men who joined the Civilian Conservation Corps (CCC) during the Great Depression. The CCC, along with the Works Progress Administration (WPA), established camps, planted thousands of trees, built fire lanes and fire lookout towers, and constructed recreational, administrative, and transportation structures and roads across the National Forests. Much of their

work on the CNNF is still evident in the form of administrative buildings, campgrounds, and fire towers. As early as the 1890s, people traveled from Chicago and Milwaukee to hunt and fish in northern Wisconsin. Early resorts were often rustic cabins, or consisted of lodging within the homes of hired recreation guides (USDA FS 1998d; 2001c).

Due to active forest management and natural processes, the previously logged forests of the CNNF have experienced remarkable recovery and currently provide many resources and values first envisioned by Presidents Hoover and Roosevelt. The CNNF provides habitat for a rich variety of both game and non-game wildlife species, contains a great diversity of plant and forest communities, and sustains a recreation and tourism industry that now rivals the logging industry in its contribution to the economic development of the north woods (USDA FS 1998d).

1.5.2 Background of the Chequamegon-Nicolet National Forest

The CNNF covers over 1.5 million acres of Wisconsin's northern forest. The Chequamegon side of the forest includes approximately 858,400 acres in Ashland, Bayfield, Price, Sawyer, Taylor, and Vilas counties; the Nicolet side covers nearly 661,400 acres in Florence, Forest, Langlade, Oconto, Oneida, and Vilas counties (USDA FS 2001c). An overview of the CNNF is shown on Figure 1. The USDA Forest Service managed these forests independently prior to 1998, with management decisions for each forest guided by separate Land and Resource Management Plans (Forest Plans; USDA FS 1986a and USDA FS 1986b). Since 1998, the Chequamegon National Forest (CNF) and Nicolet National Forest (NNF) have been consolidated and managed as one administrative unit, with offices headquartered in both Park Falls and Rhinelander.

The CNNF is located in the Northern Highlands Ecological Province of Wisconsin (Martin 1965). The majority of the forest is located within the Upper Wisconsin/Michigan Moraines, Lac Veaux Desert Outwash Plain, and Spread Eagle-Dunbar Barrens Ecological Subsections of the Northern Continental Michigan, Wisconsin, and Minnesota Ecological Section (Albert 1995). The CNNF land base lies within the glaciated portion of the Northern Highlands upland area, which extends northward to Canada and Hudson Bay and contains an abundance of lakes, streams, and wetlands (Martin 1965). The Highland Lake District of northern Wisconsin, which consists primarily of Vilas and Oneida Counties, contains the fourth largest concentration of lakes in the world (Martin 1965; USDA FS 1998d). The National Forests have often been called the “headwaters of the nation” and this is especially true of the CNNF, which is located in the headwaters of the Upper Mississippi River, Lake Superior, and Lake Michigan (USDA FS 1999a). The Nicolet land base alone contains the headwaters of the Wolf, Pine, Popple, Oconto, Peshtigo, Deerskin, and Wisconsin Rivers (Haugen et al. 1998).

According to previous studies by the USDA Forest Service, CNNF is the only National Forest in Wisconsin and contains two of the largest contiguous blocks of

public land in the State. The CNNF boundary abuts the Ottawa National Forest in Michigan on its eastern side and contains many State, county, and tribal managed lands within and near its administrative boundaries. In fact, State and county-owned land together comprise a greater percentage of land than the CNNF in the 11 counties that it occupies. The future of the CNNF is largely dependent on future management priorities, condition, and access to adjoining publicly and privately owned properties, which provide similar resources, recreational opportunities, and values to the public (USDA FS 2001d).

A 1996 study of forest lands and land ownership by the USDA FS (USDA FS 1998e) indicated that as of 1996, the CNNF consisted of 1,520,464 acres, which is equivalent to 4.4 percent of all land in Wisconsin and 9.9 percent of all forested land in Wisconsin. The 1996 study further indicated that the land base of the CNNF comprises an average of 21 percent of all land in each of the 11 counties within which they occur, ranging from two percent of Oneida County to 53 percent of Forest County. State and County lands are also present within all 11 counties and together account for an additional 15 percent of the land base. When added to tribal lands, the area comprises an average of 38 percent of 11 counties containing National Forest System (NFS) land, ranging from 21 percent (Oneida) to 58 percent (Forest) of total land in these counties. The CNNF contains over 1,200 separate private or other inholdings within its administrative borders, which corresponds to approximately 4,600 miles of property line between National Forest and other lands. A primary goal of the Forest Service mission is to acquire lands to increase National Forest ownership within the CNNF by consolidating isolated parcels and reducing property lines. To accomplish this goal, the USDA Forest Service acquired approximately 13,000 acres of land between 1986 and 1996, adding an additional one percent of NFS land in the 11 forest counties overall. Nearly 3,000 acres were added to each of the three counties of Bayfield, Oconto, and Price over this ten-year period. Although National Forests, State Forests, and County Forests are all “public lands,” land ownership patterns can profoundly affect biological diversity, local societies, local governments, cultures, and economies.

Due to the recent consolidation of the Chequamegon and Nicolet National Forest into one unit, data collection procedures and information compiled by the respective forests during their separate management may differ. Therefore, it is often necessary to discuss the forests separately in terms of physical, biological, social, cultural, and economic issues pertaining to the roads analysis.

1.5.3 History of the Chequamegon-Nicolet National Forest Roadways

Roads make our National Forests accessible; define recreational opportunities and the nature experience for most recreational users; and are important means of social, cultural, and economic interchange. The Forest Service Natural Resource Agenda stated that even the most remote parts of our National Forests, the wilderness areas, would not be accessible to the public without roads leading to trailheads. Although most forest roads were originally built for timber removal activities during the last 50 years, logging currently accounts for only one-half of one percent of all forest road use. Recreational use now

dominates motorized traffic within the National Forests. In 1996, recreation traffic per mile of road was over five times greater in the National Forests than in 1950 (USDA FS 2001f). Driving for pleasure on forest roads is the single largest recreational use on NFS lands, comprising 35.8 percent of all recreational use in 1996 (USDA FS 1998b). Due to these changing public uses within the National Forest, many recreational users are presently driving on old logging roads that are unsafe, damaging to the environment, and not maintained. Nationally, there is currently a $10.5 billion reconstruction backlog for fixing the most highly traveled roads within the NFS, and current funding appropriations are sufficient to maintain only about 40 percent of forest roads to public safety and environmental standards for which they were built (USDA FS 2001f).

In 2001 the Forest Service Resource Assessment study was published stating that the roads of the CNNF are a combination of Federal and State highways, county and township roads. In 1996, there was an estimated 2,322 miles of designated roads and 3,600 miles of non-system roads in the Chequamegon land base, and an estimated 5,585 miles of road in the Nicolet land base. The study indicated that road densities were 4.41 and 5.40 miles of roads per square mile of forest for the CNF and NNF, respectively. These road densities were above the average road density of 2.86 miles of road/square mile for all National Forest lands in the Lake States in 1996 (USDA FS 2001f).

About five percent of the CNNF, or approximately 69,000 acres, are considered Inventoried Roadless Areas (USDA FS 2000f). Inventoried Roadless Areas are generally considered public lands that meet the minimum criteria for wilderness designation under the Wilderness Act of 1964 (USDA FS 2000h). Roadless areas of the National Forests were inventoried during the 1979 Roadless Area Review and Evaluation (RARE II) and were also inventoried for inclusion into the 1986 CNF and NNF Land and Resource Management Plans (USDA FS 1986a, 1986b). Inventoried Roadless Areas within the CNNF allow for some road construction and reconstruction to repair resource damage; provide essential private or public access and recreational opportunities; and support limited timber harvest, mining, stewardship activities, and other special uses (USDA FS 1986a, 1986b). However, inventoried roadless areas are not being considered under this roads analysis.

In 1992, the Forest Service adopted a new management philosophy called ecosystem management, which provides an ecological approach to managing the National Forests (USDA FS 2001c). The Forest Service defines ecosystem management as “an ecological approach to natural resource management to assure productive, healthy ecosystems by blending social, economic, physical, and biological needs and values” (USDA FS 2002c). Ecosystem management considers the holistic effects of forest management decisions over large landscape levels of the National Forests. The roads analysis is an initiative that resulted from this new management philosophy.

The Forest Service’s new Transportation Policy, adopted in 2000, requires that all National Forest road decisions that “may affect access or generate adverse environmental effects be informed by a roads analysis” (USDA FS 2002a).

Furthermore, every NFS administrative unit must have a forest-scale roads analysis completed by January 13, 2003 (FSM 7712.15). The present CNNF roads analysis is being conducted to comply with this directive, because decisions in the future *Forest Plan* revision, as well as future projects, have the potential to affect roads and public access.

After more than a decade of *Forest Plan* implementation on the CNNF, there is a trend toward reducing soil disturbing activities (such as road construction and reconstruction forest-wide), and increasing road closures (USDA FS 1998h). However, most road closures generally take place on lower Maintenance Level roadways, which may have been user-developed roads or administrative roads that are not needed for public or private access. These roads are not considered under this roads analysis.